

JAN 21 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Ke Liu et al

Docket No.: C-2990HyS

Serial No.: 10/691,794

Art Unit: 3748

Filed: October 23, 2003

Examiner: Nguyen, Tu Minh

Title: Intermittent Application of Syngas to
NOx Trap and/or Diesel Engine

RESPONSE

Commissioner for Patents
P.O. Box 1450
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I hereby certify that this correspondence is being
facsimile transmitted to the Patent and Trademark
Office (Fax No. 703-872-9306) on

January 21, 2005

Barbara Coccia

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Sir:

1. This paper is responsive to the Final Rejection dated December 21, 2004; claims 1-4 remain for consideration.

2,3. Claim 1 is rejected as anticipated by Kirwan et al (Kirwan). This rejection is being taken in the light of "Response to Arguments" on page 6 of the Office Action. It is quite clear that the Office Action has the situation reversed. There is no claim requirement that the amount of syngas be applied to the engine during first periods of time interspersed with second periods of time, nor that during second periods of time the engine has different amounts of syngas applied to it. Claim 1 includes an engine and an auxiliary system. It is the auxiliary system that will have syngas applied to it, "repetitively, during operation of said engine"..."during first periods of time interspersed with said second periods of time". What happens to the engine is irrelevant in this clause of the claim.

The last clause of claim 1 requires that the amount of syngas generated must be reduced, or a mini CPO must feed the reformer. Kirwan has no mini CPO. Kirwan does not teach "reducing the amount of syngas generated". In fact, the

rejection does not even allege that Kirwan reduces the amount of syngas generated.

As stated in the previous response, Kirwan applies syngas to the auxiliary system only for a period of time to warm it up, and "Once catalyst 24 is sufficiently heated, reformat 18b is turned off to the exhaust stream 22." Thus, with respect to the auxiliary system, it only gets syngas at startup and then just long enough to heat the exhaust catalyst. Different amounts of syngas at different periods of time within the engine are all irrelevant to the claim. Therefore, reconsideration and allowance of claim 1 over Kirwan is hereby respectfully requested.

4, 5. Claims 2 and 3 are rejected as obvious over Bromberg et al (Bromberg) in view of Kirwan. The rejection is the same as it was in the previous Office Action. Both rejections include (middle of page 4) "-third means (a controller not shown but obviously must have) altering the operation of either of the first means or the second means during the second periods by diverting the syngas from the NOx trap assembly to an inlet of the engine (lines 45-52 of column 4)." As pointed out in the previous response, the relevant portion of claims 2 and 3, specifically, "(a) diverting said syngas from said NOx trap assembly to an inlet to said engine" have been cancelled.

The rejection does not address the subject matter of claims 2 and 3; specifically, the rejection does not address either (i) reducing the amount of generated syngas nor (ii) feeding the reformer from a mini CPO. Despite that, it is alleged that Bromberg discloses the claimed invention except for specifying that the non-regeneration time is 8-20 times longer than the regeneration time. That is not true. Bromberg does not even hint at reducing the amount of generated syngas nor feeding the reformer from a mini CPO.

Then the rejection goes on to explain how Kirwan applies various amounts of gasoline and syngas to his engine, which is completely irrelevant to the claimed

subject matter in claims 2 and 3. It may have been obvious to modify Bromberg with Kirwan, but that has nothing whatsoever to do with the claimed subject matter. The issue in claims 2 and 3 are (a) reduction of the amount of generated syngas during the second periods of time or (b) feeding the reformer with a mini CPO during the second periods of time. None of this is hinted at in either Bromberg or Kirwan. The rejection simply does not deal with the language of claims 2 and 3. The references, when combined, must teach all claim limitations (MPEP 2142.2143.03). Therefore, reconsideration and allowance of claims 2 and 3 over the references is hereby respectfully requested.

6. Claim 4 is rejected as obvious over Bromberg in view of Kirwan and official notice. Claim 4 is patentable for the same reasons as claim 3 (MPEP 2143.03) and its allowance is requested.

7. In the "Response to Arguments" there is no response to the arguments related to claims 2 and 3. The arguments with respect to claim 1, all relating to Kirwan, simply point out that Kirwan uses different amounts of syngas in the engine, which obviously is not an auxiliary system in an internal combustion engine system. The claimed subject matter is not addressed at all.

Should the foregoing not be deemed to place this case in condition for allowance, a telephone call is earnestly solicited.

Respectfully submitted,



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